

MEMORANDUM

Date: March 17, 2015

From: Wilmington Environmental Restoration Committee (WERC)

To: Jim DiLorenzo/EPA

Re: WERC Comments

OU3 Data Gap Analysis and Supplemental Work Plan Revised (Dec. 16, 2014)

Olin Chemical Superfund Site - Wilmington, MA

General

Olin/AMEC has revised the OU3 Data Gap Analysis and Supplemental Work Plan to address many of the comments submitted to Olin. However, several major comments remain to be addressed.

- The largest deficiency is the lack monitoring data, analysis and discussion on the migration of contaminants through bedrock fractures.
- Second, many of the requested figures were not included in the revised work plan. Specifically, only ammonia, NDMA, and sulfate vertical concentrations profiles were added for the vertical concentrations profiles. Additionally, the submitted profiles included a number of omissions and errors.
- Next, lab analysis for many monitored contaminants had detection or reporting levels well above RSLs and MCLs because of needed dilution of the sample. This fact should be recognized and discussed how this deficiency will be addressed.
- Lastly, figures are very important to convey findings of the monitoring and determine the adequacy of the existing monitoring program. An additional figure should be developed using the bedrock map and adding the contaminant concentrations contours.

Bedrock Fractures

Discussion and figures were added to the work plan to better address bedrock contours and presence of bedrock fractures. However, no analysis and only limited discussion (pg. 2-16) were included to address the transport of contaminants through bedrock fractures. The following examples indicate transport of contaminants through bedrock fractures does occur.

- Monitoring data from private wells indicate that NDMA has traveled long distances through bedrock.
- The town well, Chestnut #1, has recorded a NDMA value of 166 ng/l. This value is much higher than surrounding monitoring wells. Again, an indication that contaminants are traveling through bedrock, especially when the town well was pumping.
- Some of the highest NDMA concentrations in the study area is at bedrock Well GW-62BR. Concentrations of 13,000 and 16,000 ng/l were found. This well is not in an area that has a Dense Plume (DAPL). Instead, this well is between the Main Street Dense Plume area and the Dense Plume below Maple Meadow Brook. The high concentrations found in this bedrock well again indicates that contaminants are traveling through the bedrock.

The narrative on the location of the Dense Plume has been the Dense Plume flows over the bedrock surface and fill the bedrock bowls and then spill over into the next area. However, this ignores the presence of fractures in the bedrock and the above observations. The Dense Plume can also travel through the bedrock fractures to reach the next bedrock bowl. A complete analysis should be performed that examines the bedrock fractures and potential pathways of contaminants through bedrock fractures should be more completely discussed. If Olin disagrees with the bedrock fracture transport scenario then they should answer the question of transport to the private wells, town well and the high concentrations at Well GW-62BR.

Vertical Concentrations Profiles

The revised work plan includes two profiles (A-A') and (B-B') for ammonia, NDMA and sulfate. The following comments:

- Vertical profiles should be provided for all contaminants which had shallow, deep and bedrock figures in the work plan.
- Units used should be consistent with the units used in other parts of the work plan such as the shallow, deep and bedrock figures. For example, use ng/l, not ug/l for NDMA. Yes, the problem is really small if gm/l or kg/l is used.
- To develop the profiles, only selected data was used. Data for wells GW-85M, GW-85D, GW-86D and Chestnut #1 were not used. Inclusion of this monitoring data for NDMA produces different concentration contours. Though data from these wells are older, 2004, it has been accepted by all parties to be representative of the site conditions and is used in other parts of the report.

- Several concentrations contour lines were missed in the development of the NDMA profiles.
- Containment results in bedrock wells were not included in the profiles. Ignoring the results from the bedrock wells because of the complexity of bedrock fractures is not an excuse.

Revised NDMA concentration profiles that address the above noted issues are attached to this memo.

Laboratory Analysis Results

Laboratory analysis for many monitored contaminants had detection limits or reporting levels above RSLs and MCLs because of needed dilution of the sample. This fact should be recognized by presenting a table with the contaminants and the percent of detection limits above RSLs and MCLs. Also, a discussion of how this data will be used for future analysis should be provided.

Contaminant Concentration Contour Maps

Figures are very important to convey findings of the monitoring and determine the adequacy of the existing monitoring program. An additional figure using the bedrock map with the contaminant concentrations contours should be developed for all the contaminants of concern. This figure integrates the bedrock map with the vertical concentration profiles. For example, an NDMA concentration contour map would have contours at 2, 10, 100, 1000, and 10,000 ng/l. This can be done by hand interpolating monitoring results or GIS software can perform this task.

